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News Bulletin of The Entomological Society of Victoria Inc.

THE ENTOMOLOGICAL SOCIETY OF VICTORIA (Inc)

MEMBERSHIP

Any person with an interest in entomology shall be eligible for Ordinary membership. Members of the Society include professional, amateur and student entomologists, all of whom receive the Society's News Bulletin, the Victorian Entomologist.

OBJECTIVES

The aims of the Society are:

- (a) to stimulate the scientific study and discussion of all aspects of entomology,
- (b) to gather, disseminate and record knowledge of all identifiable Australian insect species,
- (c) to compile a comprehensive list of all Victorian insect species,
- (d) to bring together in a congenial but scientific atmosphere all persons interested in entomology.

MEETINGS

The Society's meetings are held at the 'Discovery Centre', Lower Ground Floor, Museum Victoria, Carlton Gardens, Melway reference Map 43 K5 at 8 p.m. on the third Tuesday of even months, with the exception of the December meeting which is held on the second Tuesday. Lectures by guest speakers or members are a feature of many meetings at which there is ample opportunity for informal discussion between members with similar interests. Forums are also conducted by members on their own particular interest so that others may participate in discussions.

SUBSCRIPTIONS

Ordinary Member	\$30	
Overseas Member with printed bulletin		\$65
Country Member	\$26 (Over 100 km from GPO Melbourne)	
Student Member	\$18	
Membership Electronic (only)		\$20
Associate Member	\$7 (No News Bulletin)	
Institution	\$35 (overseas Institutions \$80)	

Associate Members, resident at the same address as, and being immediate relatives of an ordinary Member, do not automatically receive the Society's publications but in all other respects rank as ordinary Members.

LIFE MEMBERS: P. Carwardine, D. Dobrosak, R. Field, D. Holmes, T. New, K. Walker.

Cover design by Alan Hyman.

Cover photo: *Megacmonotus magnus* taken the Bush Blitz at Ned's Corner in November 2011 by Ken Harris. For more information see *Victorian Entomologist* V 44(1) p.7.

Minutes of the Entomological Society of Victoria General Meeting
Tuesday 21 October 2014 Discovery Centre Seminar Room, Melbourne Museum

Attendance: Members: Patrick Honan, Linda Rogan, Geoff Hogg, Ken Gosbell, Carol Page, Sharon Mason, Geoffrey J Weeks, Joshua Grubb, Mackenzie L. Kwak, Jim Tuttle, Peter Marriott, Wendy Moore, Steve Williams, Peter Carwardine, Julia McCoey, Peter Lillywhite.

Visitors: Susan Lengyel, Mary Ann McCoey.

Apologies: Marilyn Hewish, Ian Endersby, Ken Harris, Ray Besserdin and Maik Fiedel

The general meeting was opened by President Patrick Honan at 19:48.

Previous minutes:

Previous minutes of the general meeting on 19 August 2014 [reported in Vol 44 No. 5 p.90] accepted.

Moved: P. Lillywhite

Seconded: P. Carwardine

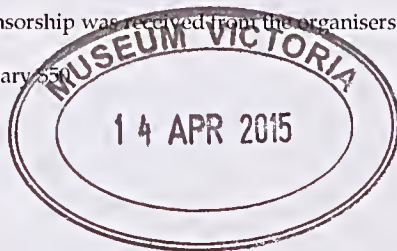
Correspondence:

Science Talent Search. A thank you note for our sponsorship was received from the organisers of the Search. Recipients of the awards were as follows

Lucy Ollerenshaw, science photography: Major Bursary \$50

Skye Sriratana, posters: Minor Bursary \$25

Katrina Tran, posters: Minor Bursary \$25



Treasurer's Report:

Account balances:

General: 160 \$5,827

Le Soufe: \$5,283

Publishing: \$18,321

Financial members: 109

Unfinancial members: 8

Moved: P. Marriott Seconded: P. Carwardine

One new member accepted and welcomed to the Society:

Luis Mata from Melbourne whose interests include Heteroptera

Moved: P. Lillywhite and Seconded: P. Carwardine

General Business:

Presentation of Melbourne Bioblitz

by Susan Lengyel, Urban Ecology Coordinator for Melbourne City Council

Susan enthusiastically announced the Melbourne Bioblitz, to be held from October 31 - November 15 2014. She strongly encouraged our members to participate. Melbourne Bioblitz event is run in partnership between the City of Melbourne, Museum Victoria, RMIT, the University of Melbourne, Australian Research Centre for Urban Ecology, Royal Botanic Gardens, Zoos Victoria and Parks Victoria.

The BioBlitz aims to encourage participation through citizen science and increase awareness of biodiversity; to gather data; to gain an understanding of biodiversity in



the private realm. Doing so will highlight the value of urban ecosystems, establish a baseline of species diversity important to the community and demonstrate the value of citizen science.

There are a lot of organised events and surveys over the two weeks where participants can work alongside professional and amateur naturalists to discover Melbourne's biodiversity. Some of these will involve the Society's members. Individuals can also conduct their own surveys and record the results using #bioblitzmelb.

Although the surveys cover the area administered by Melbourne City Council (MCC), Susan felt it would be useful for people outside this boundary to participate as well, recording insects and invertebrates seen during this week. This can be done via additions to the BowerBird website by including observations in the project listed as City of Melbourne BioBlitz. Susan says that the BowerBird project will be ongoing beyond the BioBlitz week so any members who spend time in Melbourne City and utilise BowerBird could easily add this to their project lists.

There will be prizes offered during the BioBlitz for the best photo, the most uploads and the most unexpected find.

Members' presentations:

Mackenzie Kwak - A Passion for Parasites

Mackenzie, a new member, introduced himself via a Powerpoint presentation. His background includes nearing completion of 3rd year in a Bachelor in Biological Science - Zoology from Latrobe University. His entomological interest was piqued during work experience with Alan Yen some years ago and he has specialised in medical and veterinary entomology. His current work is with Mali Malpatil at DEPI.

Some of his interests were displayed in a collage of ticks, mosquitoes, bugs and flies.

He mentioned three current projects:

1. Revision of the flea genus *Geohollaudia* (Family Pygiopsyllidae).

Since he found no work on flea taxonomy since 1974, he anticipates many discoveries are yet to be made. He has already found one probable new species in this genus.

2. Molecular phylogeny of the Australian paralysis ticks.

The paralysis ticks are a group that has great medical and veterinary importance. The most medically important group in Australia is the subgenus *Sternalixodes*. In this group only *Ixodes holocyclus* & *Ixodes cornuatus* have had any molecular work done.

3. DEPI parasitology collection curation.

Tasks involved in the curation of this collection include ALA registration for all specimens in the collection, identification for DEPI and others, increasing the collection (in part via collecting from roadkill).

Mackenzie closed with a photo of a tick questing in order to pick up the trace of CO₂ that will lead it to its next victim (Fig.1)

He also had a number of specimens for inspection after the presentations.



Figure 1. Tick questing. Photo by Dr Stephen Doggett Department of Medical Entomology at Westmead Hospital in Sydney.

Linda Rogan - Photography, the internet and some beautiful insects and a spider

Linda's presentation started with native bees and insects she photographed in Queensland in July and August 2014. Identifications and some other information have been gained via posting the photos on BowerBird, Flickr and utilising the PADIL website, in particular for bees.

At the most northern point in her travels, at Home Rule, a favourite low key "resort" and camping area 40kms south of Cooktown, 2 species new to her were photographed. First was a shiny black *Megachile* bee that had white hairy markings in the upper mesosoma (Fig. 2). Next a smaller bee with bold yellow markings and a shiny green mesosoma (Fig.3). When posted on BowerBird these were identified: the *Megachile* by Ken Walker and the 2nd *Palaeorhiza* by Bernhard Jacobi a German who is keen on Australian native bees. Bernhard pointed out that this ID took some extra time as there are 25 species of *Palaeorhiza* listed for Australia by PADIL and only 2 of these are shown in photos on the website. This is an indication that few reliable specimens have been collected. However, he stated, "markings on scutellum and postscutellum are the give-away character" referring to the species name (Fig.3).

Linda's second photo of the latter genus, for the trip, was *Palaeorhiza* *Palaeorhiza* sp. on a mistletoe, taken at Edmund Kennedy NP (Fig. 4).

A stop for a few days at Porcupine Gorge, north of Hughenden was also a return to a favourite locality. This year it was so dry that Linda held little hope of finding insects due to lack of flowers. However a small area near the top of the gorge had been burnt stimulating an excellent blooming of the Rough Bluebell *Trichodesma*



Figure 2. *Megachile* (*Callomegachile*) *cincturata* near Cooktown



Figure 3. *Palaeorhiza* *Callorhiza* *disrupta* near Cooktown



Figure 4. *Palaeorhiza* *Palaeorhiza* sp. at Edmund Kennedy NP



Figure 5. *Megachile* sp. Mariala NP, Queensland

zeylanicum. This species alone attracted many bees, all *Amegilla* (*Zonamegilla*) *pulchra*, *Iridomyrmex* ants, *Enchyrsops cnejus* Spotted Pea Blue Butterfly and an assassin bug. In addition a Hawk Moth, some butterflies and a bug *Poecilometis nigriventris nigriventris* were seen.

Many kilometres south through much dry country, a single prolific bee shrub, an *Eremophila*, was found at Mariala NP. The most exciting find here was a *Megachile* that Michael Batley believes is "an undescribed species superficially like *M. semiluctuosa* but much smaller and with several unusual features" (Fig. 5). Amongst the other bees on this *Eremophila* were *Hylaenus* (*Rhodohylaenus*) *lateralis* and *Meroglossa impressifrons penetrata*.



Figure 6. *Maratus* sp. Langwarrin, Vic.



Figure 7. *Theristria* sp. Mount Zero, Grampians, Vic.

Linda closed with photos of her first Victorian peacock spider, a *Maratus* sp. undescribed (Fig. 6), and her first mantis lacewing photo that Ken Harris states is a *Theristria* sp. (Fig. 7).

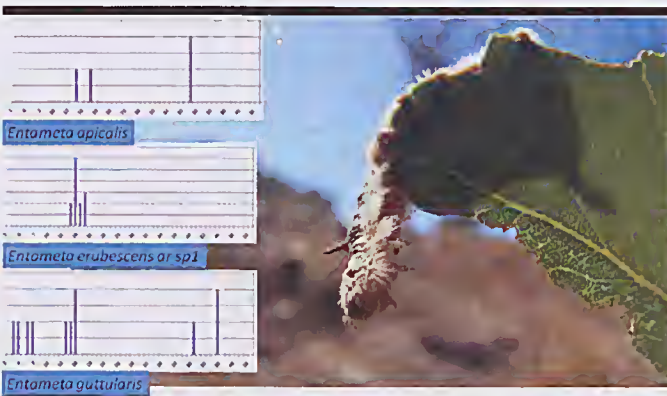


Figure 8 Flight times of 3 *Entometa* sp. and *Entometa* larva.

Steve Williams - Snout Moths

Steve's presentation was made up of excellent photos of species he is raising from the *Entometa* genus including a puzzling sp.1 close to *E. erubescens*.

Comparative flight times of *E. apicalis*, *E. erubescens* or sp. 1 and *E. guttularis* were shown (Fig.8) and eggs for a range of species (Fig. 9).

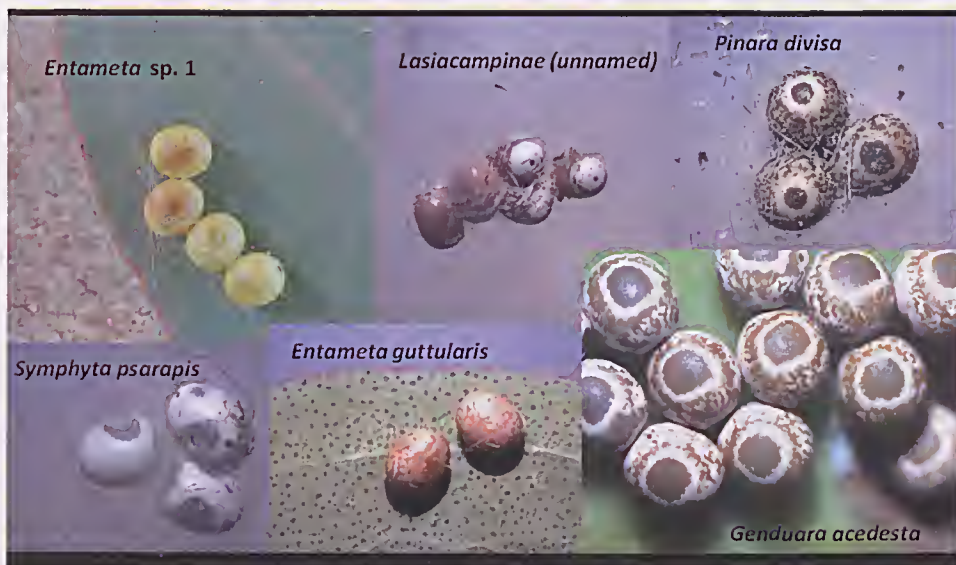


Figure 9. Eggs from a range of species including *Entometa* sp. 1.



Entometa apicalis

Figure 10.



Entometa guttularis

Figure 11.



Entometa erubescens?

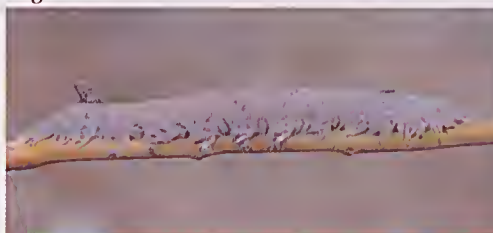
Figure 12.



Entometa sp. 1?

Figure 13.

Larvae of 4 or 5 species were shown (Fig.10-14). *Entometa apicalis* has large cryptic caterpillars (Fig. 10). They may be more distinctive than the adults and have varying colour forms. It is yet to be seen whether the colour forms carry over to the adult.



Entometa fervens?

Figure 14.

Species 1 larvae (Fig. 13) are uniformly coloured with reduced bumps compared with *E. erubescens* (Fig. 12). So far Steve has raised all but 3 of the *Entometa* species.



Typical *entometa* cocoon



Entometa chlorosacca cocoon

Figure 15.



Entometa guttularis male



Entometa guttularis (female)

Figure 16.

The cocoon of the *Entometa chlorosacca* differs greatly from the typical cocoon of *Eutometa* (Fig. 15).

Steve closed with the photos of adult male and female *E. guttularis* (Fig. 16) and remarked he finds something comical about the males with their snouts and crooked antennae.

Wendy Moore - An October weekend of observations near Mount Lonarch, Victoria.

Wendy presented photos from the wide range of species, mostly moths, attracted to her light trap near Mount Lonarch in October 2014 plus some interesting shots of related larvae taken earlier. A few are shown in figures 17 - 22.



Figure 17. Saturniidae *Opodiphthera helena* amongst other smaller moths attracted to the light sheet.
Oct. 2014 Mt. Lonarch



Figure 18. Mt Lonarch Lymantriidae *Iropoca rotundata*



Figure 19. Geometridae Oenochrominae *Parepisparis lutosaria* Oct 3 Mt Lonarch



Figure 20. Geometridae (Oenochrominae) *Parepisparis lutosaria* Oct18 14 Mt Lonarch

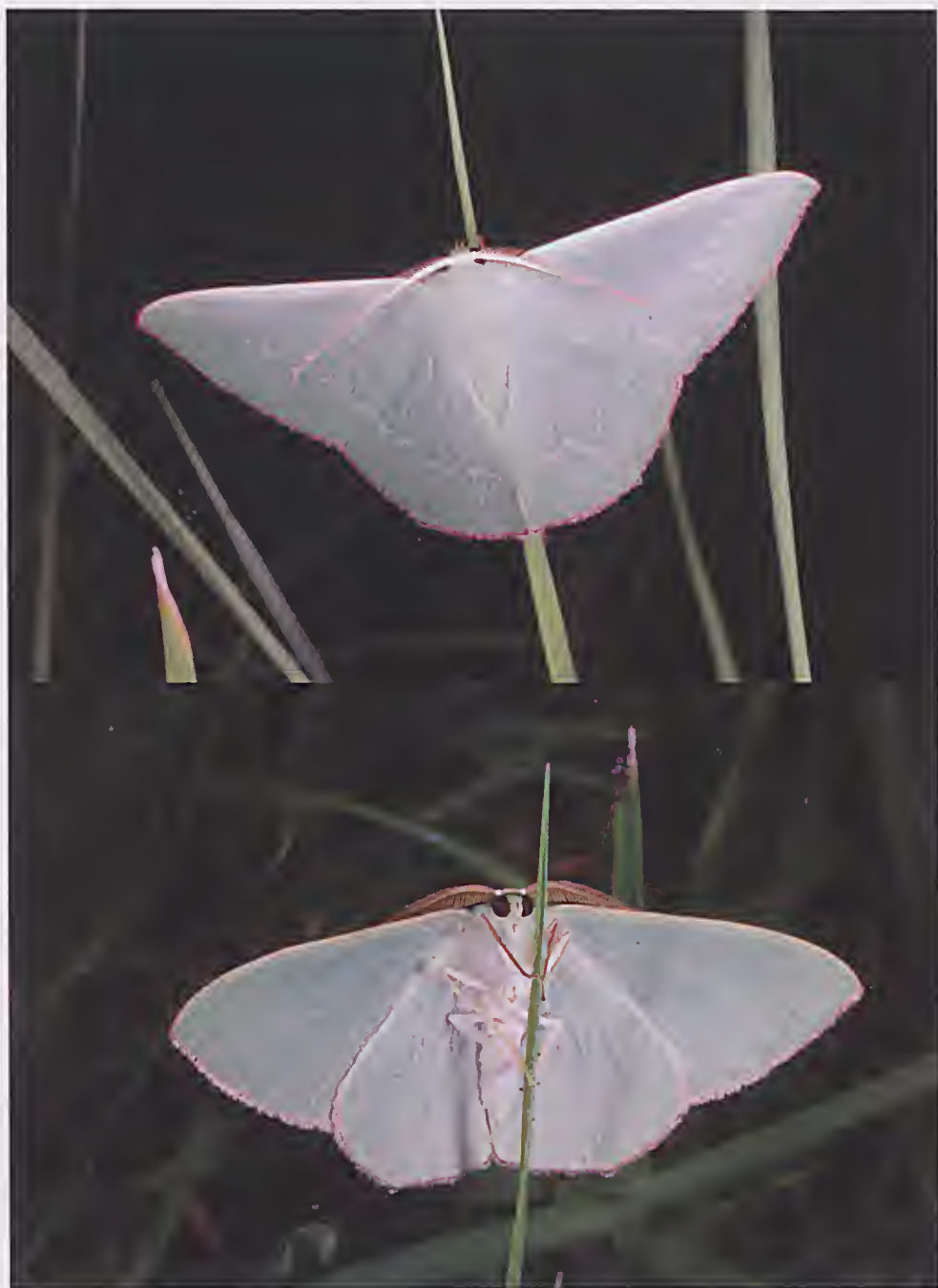


Figure 21. Geometridae (*Prasinocyna*) *semicrocea* Oct. 18 2014 Mt. Lonarch.



Figure 22. Limacodidae *Pseudanapaea transvestita* Orange Cup Moth Oct. 17 2014 Mt Lonarch and larvae photographed in April, showing their ability to be camouflaged against gum leaves.

As time was short, Patrick promised us his presentation of Skull Rock by helicopter and abseil in the near future.

Meeting was closed at 21:30.



**Minutes of Entomological Society of Victoria Council Meeting
Tuesday 18 November 2014 Melbourne Museum**

Attendance : Patrick Honan (minutes), Maik Fiedel, Linda Rogan, Joshua Grubb, Peter Marriott, Peter Carwardine, Peter Lilywhite, Steve Curle

Apologies : None

Previous minutes

Minutes of the previous council meeting held on Tuesday 16th September 2014 were tabled and as published in Vic. Ent. 44(5) 102-103, October 2014 – Accepted as read M: L Rogan S: M Fiedel

Correspondence

Letter from Lucy Ollerenshaw thanking the ESV for the Science Talent Award prize. This touching note is included below:

November 6th 2014

Entomological Society of Victoria Inc
Mr Ian Endersby
c1-56 Looker Road
Mooramancy 30094

Dear Mr Endersby,
I was thrilled in receiving a major Bursary in the Science Talent Search photography. Thankyou for your sponsorship of the Science Talent Search.

I love taking photographs of insects and many other subjects. I have entered in other photographic competitions and continue to improve my level. I will work hard on the next years topic, reflective for the science talent search.

I will put the fifty dollars towards a lens for my camera to improve better quality shots. Than I will take in the future with a macro lens, which makes the object bigger in the photograph.
Thankyou
Yours Faithfully
Lucy Ollerenshaw

Treasurer's Report

Account balances:

General: \$5,528

Le Soufe: \$5,334

Publishing: \$19,689

Nine members were removed from the membership list due to being unfinancial after the 30 October cut-off.

The new term deposit will become effective from 8 December.

The Goalsaver account will not be pursued by the Society

Memberships

Financial: 111; unfinancial: 0

Any memberships received after the 30 October, but before the December Bulletin is sent out, will receive a bonus December Bulletin for this calendar year.

One new member accepted and welcomed to the society:

Grace Lewis, Hamlyn Heights, her interests are in general insects

Editors report

The next Bulletin is ready to go to the printer as soon as the council minutes are added.

A query about a proposed article about *Ogyris armayllis* was received from Martin Lagerwey. Linda will contact Martin for clarification.

A review of 'Cockroaches of Australia' has been received from Jessie Sinclair.

Publications report

Three copies of each *Moths of Victoria* title will be shipped to NHBS in the UK for sale through their website.

General business

- ESV Christmas outing will take place at The Patch Primary School on Sunday 7 December. Patrick will send an email to members with more details.
- The ESV newsletter is being sent to overseas entomological societies, some of whom have been responding with their own newsletters.
- There are still a couple of emails bouncing back from the ESV email list. If you have not received emails including the newsletter and updates on EntVic events, please contact Patrick.
- Josh will change the membership form asking applicants to add their surnames as reference when making online payments.
- Three teams of ESV members are going to the Gippsland Lakes Bioscan.
- The Melbourne Urban Bioblitz was very successful. More details will be included in the Bulletin and Newsletter.
- Speakers for 2015 are being contacted and the list will be published in the Bulletin and Newsletter. Please contact Patrick with any suggestions.

The meeting was closed.

Future meeting dates: are listed on back cover of the Bulletin.

Biographical notes on George Lyell, Victorian lepidopterist

Continued from VE 44:5 p. 96

Marilyn Hewish

Entomology

Information on George Lyell's early collecting comes from an article by R.T.M. Pescott, Director of the National Museum of Victoria, now the Melbourne Museum (Pescott, 1946). In 1888, aged 21, George Lyell collected his first butterfly, a Caper White (*Belenois java*), at Albert Park Lake. Wanting to learn more about the specimen, he visited Frank Spry, an eminent entomologist, at South Melbourne. From Frank, he learned about the Field Naturalists Club of Victoria (FNCV) and he joined in 1888. He collected at Albert Park, and occasionally Murrumbena, Springvale, Hampton and Cheltenham. Almost immediately he had an impact on entomological knowledge. In 1888, he collected 13 Lesser Wanderers (*Danaus petilia*) at Albert Park. The species had not been collected in southern Victoria for 14 years.

When George Lyell arrived in Gisborne in 1890, he continued with his hobby. At night, he walked alone with a fold-up net and lamp in the forested ranges at Bullengarook, in the Pyrete Range or towards Macedon (Garnet and Burns 1851; Jean Benson). However he was alert for specimens wherever he went, finding a rare moth on the woodheap at the Cherry factory and the butterfly *Pseudalmenus chlorinda zephyrus* on a wattle tree in the main street of Gisborne (KD in Oral History files; Garnet and Burns, 1951). George Lyell had an intimate knowledge of the Lepidoptera of the Gisborne region. He knew the places and dates when particular species were flying and the particular trees where feeding larvae could be found. When he found eggs under bark, he could sometimes estimate when they would emerge (Garnett and Burns, 1951; Jean Benson; KD in Oral History files). Garnet and Burns (1951) refer to George Lyell's skill in finding larvae, but there is no direct information in the Historical Society files on his rearing of adults of Lepidoptera from larvae. He did so



Figure 5 George Lyell label and monogram, Melbourne Museum moth collection. Markings on the scale indicate 1 mm. Photos: Marilyn Hewish.

regularly. Many of his labels in the Melbourne Museum collection bear the word, "Bred".

Most of George Lyell's specimens came from the Gisborne district, but he also made trips to other parts of Victoria and interstate to collect. Pescott (1946) mentions visits to NSW and one visit each to southern Queensland and SA. In May 1948, he made a trip to Ridgeway, Tasmania, to visit Mem Tagg and collect (letter to C.G.L. Gooding, 5 May 1948; letter from Mem Tagg, 18 September 1949).

Jean Benson described the procedures he followed in capturing and setting specimens. They were never touched by hand. They were caught in a net, transferred with fine tweezers to a tiny glass-topped box and carried home, still alive. On arriving home, George Lyell put the insect into a poison bottle. He then placed a pin through the body and relaxed the insect in a cork-lined zinc container dampened with hot water. When relaxed, the insect was set on a grooved mounting board. Jean Benson wrote that the wings were held in place with pieces of sewing cotton stretched over them to keep them flat. This technique is outlined by Waterhouse and Lyell (1914). Pressure on a cotton thread was varied to allow the wings to be moved into position and they were then secured by narrow strips of paper held in place by fine pins placed with tweezers. The insects were left for a few days to set, or longer for larger specimens. Specimens posted to other collectors were pinned in a small box and sent packed in cotton wool (Anon., 1932).

For all serious collectors, storage eventually becomes an issue. In 1890, George Lyell designed wooden cabinets with drawers. They fitted together to make larger units. On 1 July 1890, he filled the first cabinet. He had 632 specimens of 270 moth and butterfly species. He aimed to add a cabinet every year and, by 1932 when he began the transfer of the collection to the museum, he had more than 300 drawers (Pescott, 1946). Each insect carried a label with the location (usually printed), date (hand-written) and collector (either printed or hand-written). Collectors' names were given in full, as initials or as monograms (labels in Melbourne Museum collection). The hand-writing was small and neat in Indian ink (Figure 5). A label with the scientific name of the insect was placed at the bottom of each row of moths. Many visitors, from lepidopterists to the general public, came to view the collection at Gisborne (Jean Benson).

An undated sketch by Jean Benson shows four sets of moth and butterfly cabinets in the Lyell house: one in the front room at the south-west corner of the house and another three in a back room in the north-east corner. When new cabinets were made for the transfer to the museum, the old cabinets were sold to the CSIR Division of Economic Entomology (now the ANIC) and sent to A. Jefferis Turner in Brisbane for his collection. After Turner's death in 1947, the cabinets were returned to Canberra by air. During the 1960s, they were on loan to V.J. Robinson of Wollongong. They were returned to the ANIC in 1983 (E.D Edwards, pers. comm.). On 17 July 2004, some of these cabinets were loaned to Doug Hilton of Warrandyte to house his research collection (D. Hilton, pers. comm.). Front glass doors hinge upwards and slide into a slot and each cabinet holds eight drawers (Figure 6). Each drawer lid and base is numbered to ensure they can be matched. This is necessary because of slight variations in dimensions between the trays. However, Ted Edwards of the ANIC is of the opinion that the workmanship was so good that most lids are interchangeable (pers. comm.).

Well organised as always, George Lyell made an annual stocktake of his collection, noting the condition of every specimen. He also kept track of the Melbourne Museum collection while his collection was being transferred. In the Historical Society files, there is a typed list of the museum's moth specimens dated 1 January 1941. It lists the families, and for each, the numbers of drawers, genera, species and specimens (Heterocera Collection of National Museum, Melbourne, January 1941). In the Melbourne Museum, there is a large, bound volume containing George Lyell's hand-written catalogue of the collection. It is undated but the latest specimen date found is 1935. There is also a photocopy of this ledger in the ANIC (E.D. Edwards, pers. comm.).

Through the FNCV, George Lyell became acquainted with some of the foremost entomologists in the country. He was a key member of the Victorian community of lepidopterists. The undated Lyell catalogue in the Melbourne Museum contains a list of collectors who sent him specimens. George Lyell

added their initials to the specimen labels. There are 71 people listed, including the well known collectors, F. Spry, L.B. Thorn, E. Anderson, W.E. Drake, C. French, D. Goudie, J.A. Kershaw, C.G.L. Gooding and M.I. Wise. He probably met all or most of them at some time. He stayed with the Goodings as part of his convalescence from an illness and no doubt collected around Tanjil (E.D. Edwards, pers. comm.). George Lyell was in regular contact with interstate and overseas lepidopterists such as G.A. Waterhouse, A. Jefferis Turner, R. Illidge, F.P. Dodd, W.B. Barnard, G.M. Goldfinch, O.B. Lower and L.B. Prout (Pescott, 1946; Garnet and Burns 1951; list of Selidosemidae specimens posted to L.B. Prout, 3 January 1911). He exchanged 500 specimens with one Queensland collector (Anon., 1932). Nowadays, with easy transport, collectors travel extensively. In George Lyell's time, travel was much more difficult and exchanges by post were necessary if collectors wished to expand their collections.



Figure 6. Specimen cabinets used by George Lyell at Gisborne up to 1932. Photo: Doug Hilton.



Figure 7. Peter Marriott at the specimen cabinets made by Cherry & Sons to house the Lyell Collection at Melbourne Museum. Photo: Marilyn Hewish.

Letters to C.G.L. Gooding (7 July 1926, 14 November 1931) show George Lyell acting as a central contact in mediating exchanges between his friends and seeking out specimens they desired or needed for research. He organised a swap arrangement involving 2 yellow "*lignivorus*" (Hepialidae *Aenetus lignivorus*) between Gooding and a Toowoomba collector. He told Gooding that he was watching out for *aganippe* larvae (*Delias aganippe*) for him. He also suggested arrangements whereby G.A. Waterhouse, who was working on subspecies of *Pseudahnenna chlorinda*, could view Gooding's collection. On 5 May 1948, he wrote to Gooding to say he was sending 20 pinned Hepialidae specimens he had collected at a light in Tasmania because Gooding "might like some". C.G.L. Gooding was very interested in Hepialidae and amassed a wonderful collection, particularly of Gippsland species (E.D. Edwards, pers. comm.).

In his early years in the FNCV, George Lyell often exhibited specimens at the Annual Conversations, and wrote papers, mainly on Lepidoptera, for *The Victorian Naturalist*. Between 1890 and 1909, he published several papers on species of butterflies and moths new for Victoria. He wrote other articles for *The Victorian Naturalist* in collaboration with G.A. Waterhouse (Garnet and Burns, 1951). George Lyell's most famous publication was the book he co-authored with Waterhouse in 1914: *The Butterflies of Australia*. This was the first comprehensive book on the subject and it was a valuable reference for 20 years and indeed, in some aspects, it has never been superseded (Edwards et al., 2001). Ten new genera, eight new species and 47 new subspecies were named in its pages (Garnet and Burns, 1951; Matheson, 1983; Moulds, 1999).

After a serious illness at age 65, George Lyell gave up night collecting but he continued field work involving walks of several miles, even up to age 80. In a letter to C.G.L. Gooding on 5 May 1948, he



Figure 8. New drawer made by Cherry & Sons for the transfer to Melbourne Museum. The specimens were arranged by George Lyell but the labels are not original. Photo: Marilyn Hewish.

wrote, "in my 82nd year I am beginning to feel the weight of years". However, it was not until 1950, the year before his death, that he ceased field work altogether (Garnet and Burns, 1951).

Donation of the Lyell collection to Melbourne Museum

In 1932, George Lyell suffered an extended illness of approximately five months, ending with a stay in a private hospital in Melbourne. During this time he decided to donate his collection of moths and butterflies to the National Museum of Victoria (Anon., 1932). He had maintained contact with the entomological staff at the museum since 1902 (Neboiss, 1986). The news of the donation was reported in *The Herald* newspaper of 31 March 1932 (Anon., 1932). In an interview, George Lyell said that his illness was responsible for the donation. He had always wanted to leave his collection to the nation but he realised that it would be better to do it during his lifetime when he could help with the arrangements rather than leaving the donation in his will. Transfer to the museum was expected to take ten years.

Fourteen years later in May 1946, R.T.M. Pescott, Director of the National Museum of Victoria, wrote in the journal *Wild Life* that the donation had been completed. It was being placed in the main hall for public exhibition in sections. George Lyell not only donated his own material, more than 51,000 specimens, but also relaxed, reset and relabelled hundreds of them and integrated the whole with the existing museum collection (Pescott, 1946; Jean Benson; Matheson, 1983).

George Lyell continued to add to the collection up to 1946, when the donation was completed. At that point, there were 11,721 butterflies and 39,495 moths (total 51,216), 6,177 species and 534 type specimens named by entomologists such as Turner, Meyrick, Prout and Lower. The collection contained 98% of the species of Australian butterflies known at that time. In the collection of Hawk

Moths Sphingidae, only one known Australian species was missing. The Limacodidae Cup Moths were represented by 51 species and 327 specimens and the Noctuidae occupied 42 cabinet drawers (Pescott, 1946).

New wooden cabinets and glass-topped drawers were made for the collection at the Cherry & Sons factory. The collection went to the museum in stages. As each cabinet was completed, it was filled and sent to Melbourne. KD (Oral History files) was one of the staff at Cherry's when the cabinets were made. He described them as "a very high class job" and said "the woodwork and the polishing ... would hold their place ... anywhere in the world" (Figures 7 and 8). He said that most were made from Queensland Maple (*Flindersia brayleyana*). However AN (Oral History files), whose father succeeded George Lyell as Managing Director at Cherry's, believed they were made from local Blackwood (*Acacia melanoxylon*).

George Lyell maintained his contact with the museum into old age. He was still making visits up to age 80 (Garnet and Burns, 1951). On 23 February 1950, W. Russell Grimwade, Chairman of the National Museums of Victoria, sent George Lyell a letter of appreciation for his valuable services to the museum as an Honorary worker in the year 1949. The Trustees unanimously appointed him as an Honorary worker for 1950. He died the next year.

George Lyell was made an Honorary Member of the FNCV in 1940 (Garnet and Burns, 1951). He was described in *The Herald* newspaper as "one of the Commonwealth's leading lepidopterists" (Anon., 1932). R.T.M. Pescott wrote in 1946, "The State of Victoria, and the world of science, owes a great debt of gratitude to George Lyell of Gisborne for his magnificent work." Nearly 40 years later, Elizabeth Matheson (1983) wrote, "This magnificent collection still remains the major part of the Lepidoptera collection in the National Museum of Victoria" – as it does to this day.

Acknowledgements

This paper would not exist without the work of the Gisborne and Mt Macedon Districts Historical Society in collecting and collating the files on George Lyell. Thanks to the Society for access to the material. Thanks especially to Phyllis Boyd, Ian Boyd and Joan Anderson for kind assistance in searching out references, newspaper articles, photographs and other information. The Society's members made me welcome on their working days.

I would like to thank Ted Edwards for the original files which started me on this search. His encyclopaedic knowledge of the history of Australian entomology has been of great assistance. He prepared Appendices 1 and 2 below. For the last five years, Peter Marriott has been my guide in all things to do with Lepidoptera. He shared his considerable knowledge of the history of the Melbourne Museum collection and those who contributed to it. I thank him for his constant assistance, encouragement and interest in my projects.

The Entomology Department of the Melbourne Museum has allowed me to work on the moth collection for the last five years, a process which stimulated my interest in George Lyell. Some photographs in this article were taken at Melbourne Museum. Thanks to Ken Walker (Curator), Peter Lillywhite (Senior Collection Manager) and Catriona McPhee (Collection Manager). Thanks to Doug Hilton for the photograph of the specimen cabinets used by George Lyell up to 1932 and to Ian Endersby for information on the naming of the dragonfly, *Coenagrion lyelli* (see Appendix 2).

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Appendix 1: George Lyell's publications

Compiled by E.D. (Ted) Edwards from Daniels (2004).

Lyell, G.

- 1890a. Notes by a lepidopterist. *The Victorian Naturalist* 7: 10-11.
- 1890b. [*Papilio erectheus* caught for the first time in Victoria...] *The Victorian Naturalist* 7: 12.
- 1890c. Curious action of butterflies. *The Victorian Naturalist* 7: 26-27.
1891. [When out collecting near Gisborne...]. *The Victorian Naturalist* 8: 48.
1892. Excursion to Gisborne. *The Victorian Naturalist* 9: 120.
1894. In Exhibition of specimens. *The Victorian Naturalist* 11: 122.
- 1895a. Victorian Lepidoptera. *The Victorian Naturalist* 12: 8.
- 1895b. Life history of *Xenica lobartia*. *The Victorian Naturalist* 12: 94-96.
1898. Australian butterflies - a new record. *Atella phalaeta*, Drury. *The Victorian Naturalist* 15: 58.
1899. Life histories of two Victorian Hesperidae. *The Victorian Naturalist* 15: 137-139.
- 1900a. In Barnard, F.G.A., Excursion to Gisborne. *The Victorian Naturalist* 16: 147-149.
- 1900b. Description of a new Australian butterfly, *Xenica tasmanica*. *The Victorian Naturalist* 17: 110-112, pl.
1903. The butterfly *Una agricola*. *The Victorian Naturalist* 20: 96.
1905. A new record in Victorian butterflies. *Ogyris geouveva*, Hew. *The Victorian Naturalist* 21: 166-167.
1908. Lepidoptera of the Victorian Alps; two new butterflies for Victoria. *The Victorian Naturalist* 25: 31-35.
1909. A rare Victorian butterfly. *The Victorian Naturalist* 25: 140.
1928. To Yarra Falls in the eighties. *The Victorian Naturalist* 45: 203-206.
1929. Insect collecting in the Gisborne District. *The Victorian Naturalist* 46: 150-151.
1933. Flowers' movements felt. *The Victorian Naturalist* 49: 213.

Waterhouse, G.A. and Lyell, G.

1908. Some Dimboola butterflies. *The Victorian Naturalist* 24: 165-166.

1909. New and rare Australian butterflies of the genus *Miletus*. *The Victorian Naturalist* 26: 110-116.

1912. Descriptions of and notes on some Australian Hesperidae. *The Victorian Naturalist* 28: 223-228.

1913. Description of a new lycaenid butterfly, with notes upon its life-history. *The Victorian Naturalist* 29: 156-160.

1914. *The Butterflies of Australia: a Monograph of the Australian Rhopalocera*. Angus and Robertson, Sydney. Pp 1-239, pls 1-42.

Appendix 2: Scientific names created to honour George Lyell (eponyms)

Compiled by E.D. (Ted) Edwards (Lepidoptera) and Ian Endersby (Odonata)

Lepidoptera

lyelli Rothschild, 1915. (*Parura*). Hesperidae. Currently *Pelopidas lyelli*. There is no statement that this is named after George Lyell but its use following the landmark publication, *Butterflies of Australia* makes it seem likely.

lyelli Tindale, 1935. (*Oxycaus*). Hepialidae.

lyelliana Lower, 1893. (*Termess*). Erebididae. Currently a synonym of *Phileura undulosa* (Walker, 1858).

lyelliana Lower, 1893. (*Glyphipteryx*). Glyphipterigidae. Currently a synonym of *Glyphipteryx cyanodualca* (Meyrick, 1882).

Lyelliana. Turner, 1916. Genus in the Geometridae, Ennominae, Nacophorini.

Odonata

lyelli (Tillyard, 1913). (*Coenagrion*). Coenagrionidae.

Discovered by R.J. Tillyard on a visit to George Lyell at Gisborne in December, 1908 (Tillyard, 1913).

A photograph of this species by Reiner Richter featured on the covers of issues of the *Victorian Entomologist*, volume 43 (2013).

Appendix 3: Other entomological notes and correspondence in the Historical Society files

A list of Selidosemidae [Geometridae, Ennominae] posted to L.B. Prout, 3 January 1911. Typed, with notes in George Lyell's handwriting. 150 specimens are listed with notes discussing identification. Some identifications are given in larger, bolder handwriting, some signed A.J.T. (A. Jefferis Turner).

Line drawings of an unidentified adult moth, larva and pupa. It is probably Geometridae *Auisozyga* or *Encyclodes* species (E.D. Edwards, P. Marriott, pers. comm.). In ink on tracing paper. Artist unknown. There are some notes in pencil, not in George Lyell's handwriting.

Some letters between George Lyell and other lepidopterists may be of interest to historians of entomology.

(1) Letter to C.G.L. Gooding of Moe (Tanjil Junction), 7 July 1926: refers to G.A. Waterhouse.

(2) Letter to C.G.L. Gooding of Moe, 14 November 1931.

(3) Letter to C.G.L. Gooding of Moe, 5 May 1948: refers to R.T.M. Pescott.

(4) Letter from R.J. Tillyard, CSIR, Division of Economic Entomology, Canberra, ACT, 39th (?) March 1930.

(5) Letter from Mem Tagg, Ridgeway, Tas., 18 September 1949: refers to Mr (C.G.) Oke, Mr (S.) Angel and Mr Cunningham (J.R. Cunningham of Kingston).

(6) Letter from Mem Tagg, Ridgeway, Tas., 2 November 1949: refers to Mr (S.) Angel and Mr (J.R.) Cunningham.

(7) Letter from Mem Tagg, Ridgeway, Tas., 19 May 1950: refers to Mr (J.R.) Cunningham.

(8) Letter from G.A. Waterhouse, Wahroonga, NSW, January 1950: refers to Frank (F.M.) Angel, (J.) Clark, (A.N.) Burns and (N.B.) Tindale.

(9) Letters from B. Waterhouse, G.A. Waterhouse's wife, one from 2 November (no year) and others undated, deal with personal matters.

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DIARY OF COMING EVENTS

Third Tuesdays alternate months
Melbourne Museum
Discovery Centre
Note 7:45 pm start

<i>Month</i>	<i>Date</i>	<i>Planned event</i>	
February	17th	General Meeting	Speaker TBA
April	21st	General Meeting	Annual General Meeting and speaker TBA
June	16th	General Meeting	TBA

Council meeting dates 2015:
January 20th, March 17th, May 19th
July 21st, September 15th, November 17th

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Endo